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A NEW GENUS OF STARFISHES FROM THE ALEUTIAN ISLANDS

By Austin H. Clark

During the summer of 1937, Dr. Victor B. Scheffer, of the United States Bureau of Biological Survey, made an unusually extensive collection of shallow-water echinoderms in the Aleutian Islands. Among the starfishes included were two very small 6-rayed individuals, one from Attu and the other from Amchitka, that at first sight appeared to represent a species of *Pteraster*. Closer examination revealed the fact that they are assignable to the Ganeriidae, although they are quite different from any of the other forms included in that family.

The family Ganeriidae includes the genera *Ganeria*, *Lebrunaster*, *Radiaster*, *Scotiaster*, *Cycethra*, *Kampylaster*, and *Leilaster*. Of these six genera two, *Radiaster* and *Leilaster*, are known only from the West Indies in water of from slight to great depth; all the others live in the Antarctic or immediately adjacent regions. It is especially interesting, therefore, to find a member of this family in the North Pacific.

ALEUTIASTER, new genus

Diagnosis.—A genus of Ganeriidae in which the superomarginals are absent; the inferomarginals, which are but little larger than the plates of the abactinal surface, are decumbent outwardly and broadly imbricating; and the actinal plates consist of a single row not quite reaching the arm tips, with a second irregular row traceable to about the middle of the arm; hexamerous.

Genotype.—*Aleutiaster schefferi*, new species.

Habitat.—Aleutian Islands; 1–7 fathoms.

Remarks.—At first I regarded *Aleutiaster* as most closely related to *Perknaster*, later deciding that its affinities were rather with *Cycethra*. I have never been able to examine a specimen of any species of *Perknaster*, which I know only from descriptions and figures.

Prof. Walter K. Fisher, who examined the two specimens of *Aleutiaster schefferi*, writes that he is of the opinion that *Aleutiaster* is a little nearer to *Perknaster* than to *Cycethra*—or possibly the three genera may be placed at the three apices of a triangle.

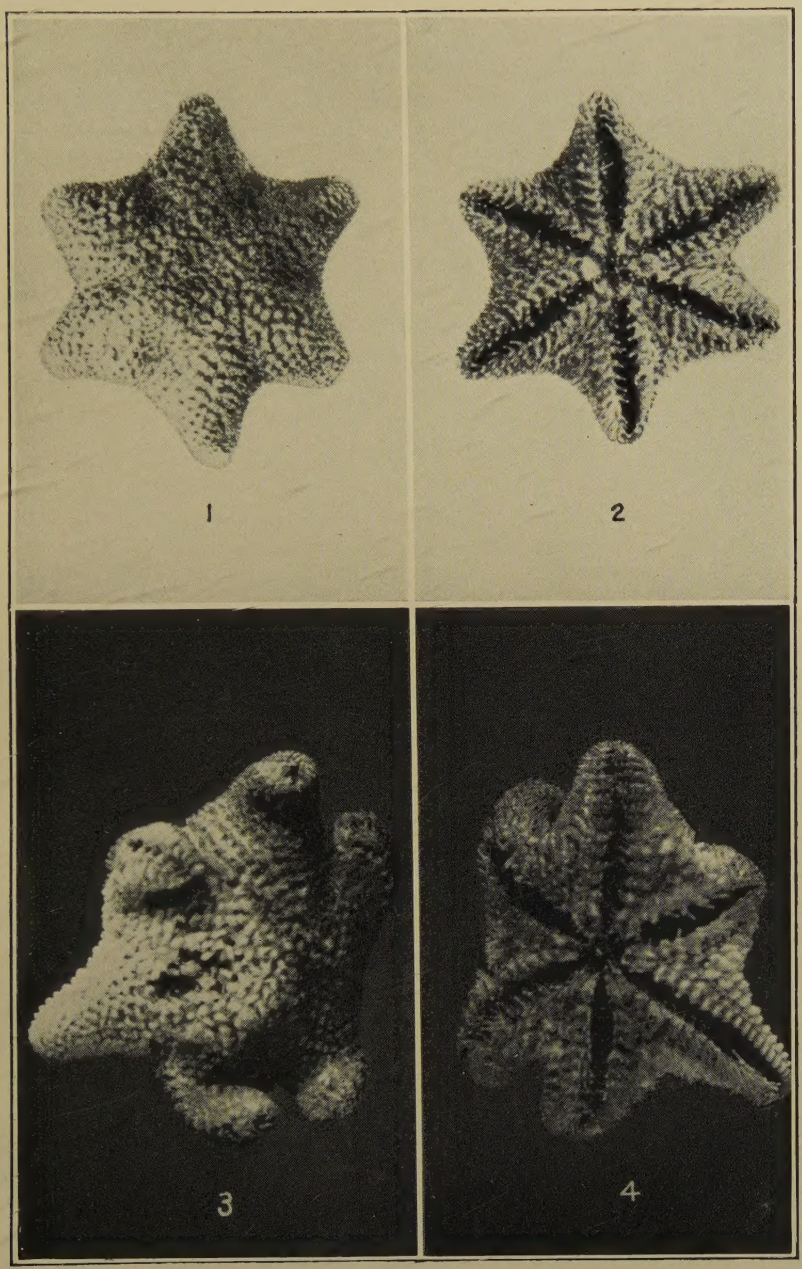
Both the specimens of the type species of *Aleutiaster* are very small and possibly immature, but their characters are so distinctive that even if the adults should prove to be much larger they will be readily recognizable.

ALEUTIASTER SCHEFFERI, new species

PLATE 57, FIGURES 1–4

Description.—A very small species with six short arms, perhaps better described as hexagonal with obtuse reentrant angles. The abactinal surface is elevated, having a somewhat inflated appearance, and the abactinal side passes over in a broad curve to the flat actinal surface. The entire animal is covered with a thick skin, which completely conceals the underlying plates. The spines are enclosed in skin sacks, and the adambulacral spine combs are webbed. The resemblance at first glance to a small *Pteraster* is striking. R=5 mm.; r=3.5 mm. R=about 1.4 r. Height at center, 3.5 mm. (=r).

The plates on the abactinal surface are very thin, scalelike, glassy, and very strongly imbricating. Those in the center are circular to broadly 4- or 5-lobed, or more or less elongate; those on the arms are broadly and roundedly wedge-shaped. Each plate has an abruptly thickened and roundedly elevated opaque portion that stands high up from the glassy scalelike base. This elevated portion is central on some of the plates on the disk, but on the plates on the arms it involves the adcentral half, or rather less; on these plates it is somewhat elongate transversely and commonly has a slightly concave thickened adcentral border. Interradially as the abactinal passes into the actinal surface the plates become elongate-triangular with the swollen narrow base away from the mouth. In the central portion of the abactinal surface the plates are somewhat irregular in arrangement, but on the arms they become arranged in diagonal lines. The greater portion of each plate is concealed beneath the plate following, so that the abactinal surface seems to be covered by the thickened and elevated portions of the plates, slightly



ALEUTIASTER SCHEFFERI, NEW GENUS AND SPECIES.

1, 2. The type specimen from Attu, abactinal (1) and actinal (2) sides. × 5.
3, 4. The specimen from Amchitka, abactinal (3) and actinal (4) sides. × 5. One ray has been denuded to show the plates.

separated from each other, all standing on a uniform filmy calcareous body investment. In the center of the abactinal surface the imbrication of the plates is more or less outward, but this soon changes so that the plates on the upper surface of the arms imbricate toward the center of the animal, those on the sides of the arms becoming somewhat oblique and those adjoining the marginals imbricating at right angles to them, toward the midline of the arms. In each interradius, about midway between the center of the disk and the interradial angle, there is a single large circular plate with a central elevated boss, which, except for the boss, is entirely concealed by the overlapping of the surrounding plates.

The elevated portion of each plate bears 1 to 10, usually 4 to 6, short spinelets situated irregularly about its summit, leaving a more or less conspicuous central area bare. These spinelets may or may not be in contact basally. They are cylindrical with roughened or denticulate tips and are short and rather stout, three or four times as long as thick. The groups of spinelets are well separated from one another. In the actinal interradial areas the groups of spinelets tend to become elongated and to be arranged in irregular rows.

There is no madreporic body, and superomarginals are absent.

A series of 13 inferomarginals runs from the interradial angle to the arm tip. These are triangular, with the apex of the triangle toward the arm base and the outer portion, which broadly overlaps the base of the inferomarginal succeeding, much swollen. Only the swollen outer portion is visible, so that the inferomarginals appear as much swollen, broadly rounded plates about twice as high as long. They are somewhat larger than the plates just above them and are distinguished particularly by their radial, instead of transverse, imbrication. They bear 5 to 8 spinelets in a double row.

Between the inferomarginals and the adambulacral plates, and connecting the two series, is a series of very small actinal intermediate plates that runs to the arm tip. The basal four or five of these plates carry a single spine; the others are without spines. As far as the eighth adambulacral plate a row of very minute plates alternates with these at their inner ends. Opposite the proximal six adambulacral plates the actinal intermediate plates become larger, and in the interradial angles between these and the inferomarginals there are about half a dozen small irregularly arranged additional plates.

There are 18 fully developed adambulacral plates along each side of the ambulacral groove. These are about three times as broad as long, project well above the general surface, and are separated from one another by their own width or more.

On the first four to six adambulacral plates there is a pair of spines of about the same size, one proximal and one distal, next the furrow. At right angles to these, and to the furrow, are at first two, then three, slightly smaller spines forming a comb. Beyond the fourth to sixth adambulacral plate the distal spine of the pair next the furrow moves downward and inward toward the furrow to a position in line with the other spines, so that a comb of five echinate spines is formed of which the innermost, at the edge of the ambulacral groove, is slightly longer and stouter than the others, and the outermost is slenderer.

The mouth plates are large and triangular. The outer ends, adjoining the adambulacrals, make an angle of about 45° with their inner opposed borders, and the length is about three times the greatest width. The pair of mouth plates dips downward toward the mouth, the inner surface rising toward the tip and toward the outer borders. Each plate bears on its long outer side four cylindrical spines resembling those on the adjacent adambulacrals, with a larger and more tapered spine at the inner angle and a smaller one on the inner portion of the distal border.

The tube feet are in two rows.

Localities.—Attu, Aleutian Islands; 2–7 fathoms; sandy bottom; Victor B. Scheffer, June 10, 1937 (type, U.S.N.M. no. E. 5600; original no. 44). (Pl. 57, figs. 1, 2.)

Amchitka, Aleutian Islands, 1–5 fathoms; Victor B. Scheffer, July 19, 1937 (1, U.S.N.M. no. E. 5601; original no. 9). (Pl. 57, figs. 3, 4.)

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